USSR

SAVIN, B. M., et al., Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 1, 1970, pp 34-39

caused more pronounced shifts in the acid-base balance in the blood and cerebrospinal fluid, and disrupted oxygen supply of brain tissues. Decompensated metabolic acidosis developed in the blood. Although there were changes in the components of the acid-base balance in the cerebrospinal fluid, they did not significantly affect its pH. Thus, regardless of the acceleration vector, the pH of brain fluids remained within normal limits due to the active role played by the blood-brain barrier.

2/2

Acc. Nr: AP0052076 Ref. Code: UR0396

PRIMARY SOURCE: Patologicheskaya Fiziologiya i
Eksperimental'naya Terapiya, 1970, Vol 14,
Nr 1 , pp 34-37

ACID-BASE BALANCE AND GASEOUS TENSION IN THE CEREBROSPINAL FLUID IN OVERLOADS OF VARIOUS DIRECTION

B. M. Savin, A. G. Kuzovkov, B. M. Ivanov

Single action upon rabbits of a series of overloads (8 g) in the head-pelvis direction causes a fall of standard bicarbonates and of pCO_2 in the arterial blood. pCO_2 increases in the venous blood, but bicarbonates remain at the previous level. as to cerebrospinal fluid, there is a rise of bicarbonates, pCO_2 and of buffer base. These shifts do not lead to statistically reliable changes of pH of the media under study. pH of arterial blood and of cerebrospinal fluid remains the same in repeated action of overloads, but it falls in the blood flowing from the brain. Overloads in the pelvis-head direction are accompanied by more marked changes of the acid-base balance in the blood and cerebrospinal fluid, as well as by considerable disturbances in oxygen supply of the brain tissues. Decompensated metabolic acidosis develops in the blood; no marked shifts are seen in the pH of cerebrospinal fluid, despite the changes in the components of the acid-base balance.

1/1

REEL/FRAME
19820614

2

1/2 031 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--ELECTROLYTE COMPOSITION OF THE CEREBROSPINAL FLUID AND CEREBRAL
BLOOD OF RABBITS AFTER EXPOSURE TO ACCELERATIONS -U-
AUTHOR-(02)-KUZOVKOV, A.G., KUDRIN, I.D.

COUNTRY OF INFO--USSR

SOURCE--KOSMICHESKAIA BIOLOGIIA I MEDITSINA, VOL. 4, JAN.-FEB. 1970, P.
82-84
DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BIOLOGIC ACCELERATION EFFECT, BRAIN, BLOOD CHEMISTRY,
CEREBROSPINAL FLUID, HYDROGEN ION CONCENTRATION, SODIUM COMPOUND,
POTASSIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/1971 STEP NO--UR/0453/70/004/000/0082/0084

CIRC ACCESSION NO--AP0120614
UNCLASSIFIED

CIRC ACCESSION NO--AP0120614

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DETERMINATION OF NA, K AND PH IN THE CEREBROSPINAL FLUID AND CEREBRAL BLOOD OF 16 RABBITS EXPOSED TO A SINGLE SEQUENCE OF 5 30 SEC 5G ACCELERATIONS AT INTERVALS OF 1.5 MIN, OR TO THE SAME ACCELERATION SEQUENCES REPEATED 5 TIMES OVER A PERIOD OF 5-7 DAYS. HIGHER CONTENTS OF K ARE ESTABLISHED IN THESE TISSUES OF EXPERIMENTAL RABBITS EXPOSED TO ACCELERATIONS, ESPECIALLY TO REPEATED ACCELRERATION SEQUENCES.

1/2 026 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--A CHANGE OF ACID BASE BALANCE AND OF ELECTROLYTIC COMPOSITION OF THE CEREBROSPINAL FLUID AND BLOOD IN PRIMARY REACTION IN RESPONSE TO

AUTHOR-(04)-IVANOV, B.K., KOZOVKOV, A.G., KUZMINA, F.V., METURAK, I.M.

COUNTRY OF INFO--USSR

SOURCE--PATOLOGICHESKAYA FIZIOLOGIYA I EKSPERIMENTAL'NAYA TERAPIYA, 1970, VOL 14, NR 3, PP 42-48

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TRAUMATIC SHOCK, CEREBROSPINAL FLUID, BLOOD, ACIDOSIS, ALKALOSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/0625 STEP NO--UR/0396/70/014/003/0042/0048

CIRC ACCESSION NO--AP0123166

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0126166

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT WAS SHOWN IN EXPERIMENTS ON RABBITS WITH THE USE OF THE METHODS OF FLAME PHOTOMETRY AND MICRO ASTHRUP THAT TRAUMATIC SHOCK INDUCED A MARKED METABOLIC ACIDOSIS IN THE BLOOD; THE DEGREE OF THIS ACIDOSIS DEPENDED ON THE PHASE OF SHOCK. AN ELEVATION OF BLOOD AND CEREBROSPINAL FLUID POTASSIUM CONTENT WAS SEEN DURING THE ERECTILE AND TORPID PHASES OF SHOCK. AN INCREASE OF SODIUM CONTENT IN THE CEREBROSPINAL FLUID AND ITS FALL IN THE ARTERIAL BLOOD WAS NOTED DURING THE TORPID PHASE OF SHOCK. THERE IS AN INCREASE OF MIXED RESPIRATORY METABOLIC ALKALOSIS IN THE CEREBROSPINAL FLUID DEPENDING ON THE PHASE OF SHOCK. DURING THE ERECTILE PHASE ALKALOSIS IS MAINTAINED ON ACCOUNT OF INTENSIFIED ACCESS OF CARBON DIOXIDE FROM THE CEREBROSPINAL FLUID SPACES INTO THE BLOOD; DURING THE TORPID PHASE OF ALKALOSIS IN THE CEREBROSPINAL FLUID IS INTENSIFIED AS A RESULT OF INCREASED PERMEABILITY OF THE HEMATO ENCEPHALIC BARRIER AND A FALL OF CARBON DIOXIDE TENSION IN THE BRAIN SYSTEM.' FACILITY: KAFEDRA NORMAL'NOY FIZIOLOGII VOYENNO-POLEVOY KHIRURGII VOYENNO-MEDITSINSKOY AKADEMII, LENINGRAD.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--TEMPERATURE SENSITIVITY OF YEAST MUTANTS SHOWING DEFICIENT
RESPIRATION -U-

AUTHOR-(02)-GAUZE, G.F., KUZOVKOVA, L.I.

K

COUNTRY OF INFO--USSR

SOURCE--IZVESTIYA AKADEMII NAUK SSSR, SERIYA BIOLOGICHESKAYA, 1970, NR 2,
PP 305-308

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--YEAST, SACCHAROMYCES, RESPIRATION, MITOCHONDRION, TEMPERATURE
SENSITIVE ELEMENT, BIOLOGIC MUTATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/0951 STEP NO--UR/0216/70/000/002/0305/0308

CIRC ACCESSION NO--AP0109108

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0109108

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TEMPERATURE SENSITIVITY OF THE YEASTS SACCHAROMYCES CEREVISIAE DISPLAYING DEFICIENT RESPIRATION IS OBSERVED ONLY UNDER AEROBIC CULTIVATION CONDITIONS AND STOPS IN CASE OF ANAEROBIC GROWTH. EVIDENTLY TEMPERATURE SENSITIVITY UNDER AEROBIOSIS IS CONNECTED WITH A DEFECTIVE MITOCHONDRIA ORGANIZATION IN YEAST MUTANTS.

FACILITY: RESEARCH INSTITUTE FOR EXPLORATION OF NEW ANTIBIOTICS, USSR ACADEMY OF MEDICAL SCIENCES.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--13NOV70

1/2 026

TITLE--AUTOMATIC POWER SOURCES FOR KRR30-60 EQUIPMENT -U-

AUTHOR-(02)-KUZOVLEV, S.A., VOROBYEV, B.A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, AVTOMATIKA, TELEMEKHANIKA I SVYAZ, NO 2, 1970, PP 25-27

DATE PUBLISHED-------70

SUBJECT AREAS--ENERGY CONVERSION (NON-PROPULSIVE), NAVIGATION

TOPIC TAGS--TELEPHONE EQUIPMENT, ELECTRIC POWER SOURCE, AUTOMATION, COMMUNICATION EQUIPMENT, RAILROAD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0599

STEP NO--UR/0225/70/000/002/0025/0027

CIRC ACCESSION NO--AP0132759

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0132759
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS HAVE DESIGNED AND
BUILT AN AUXILIARY POWER SOURCE FOR KRK30-60 EQUIPMENT. THE EQUIPMENT
IS AUTOMATICALLY SWITCHED OVER TO THE AUXILIARY POWER SOURCE IN CASE OF
THE MAIN POWER SUPPLY FAILURE. THE KRK30-60 EQUIPMENT IS BEING USED FOR
COMMUNICATION AT THE MICHURINSK DISTRICT OF THE SOUTHEAST RAILROAD. THE
POWER SOURCE IS BEING USED FOR THE PAST THREE YEARS. THE POWER SOURCE
USES HIGH Q,FACTOR ANODE FILTERS AND GENERATES VOLTAGE OF 21.5 V.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--IMPEDANCE OF THE CEREBRAL CORTEX IN RELATION TO THE NONSYNAPTIC
ACTION OF BIOPOTENTIALS -U-

AUTHOR-(03)-CHIRKOV, V.D., KUZOVLEV, V.V., MANNANNIKOV, A.S.

COUNTRY OF INFO--USSR

K

SOURCE--MOSCOW, BIOFIZIKA, NO 1, 1970, PP 84-88

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CEREBRAL CORTEX, ELECTRIC IMPEDANCE, ALKALOID, NEURONE,
BIOPOTENTIAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0848 STEP NO--UR/0217/70/000/001/0084/0088

CIRC ACCESSION NO--AP0121480

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0121480
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IMPEDANCE WAS MEASURED IN INTACT AND ISOLATED PORTIONS OF THE CEREBRAL CORTEX OF ADULT CATS AT FREQUENCIES RANGING FROM 50 TO 1,500 HZ. STRYCHNINE (1 PERCENT SOLUTION) WAS APPLIED TO THE NORMAL CORTEX OF SIX OF THE ANIMALS. THE STRYCHNINIZED CORTEX, WHERE EPILEPTIFORM DISCHARGES OCCUR, WAS FOUND TO HAVE LESS IMPEONACE THAN IN TIS NORMAL STATE. THE IMPEDANCE OF THE ISOLATED PORTION OF CORTEX WAS HIGHER THAN THAT OF INTACT NEOCORTEX. ALTHOUGH THE RAPID CELLULAR POTENTIALS PROVIDE BETTER PHYSICAL CONDITIONS FOR PROPAGATION THROUGH BRAIN TISSUE, THE SLOW SUMMARY WAVES CAN ACT OVER LARGER DISTANCES. THE INCREASED CONDUCTIVITY OF THE STRYCHNINIZED CORTEX IS ASCRIBED TO THE INCREASE IN ION PERMEABILITY OF THE NERVE CELL MEMBRANES, WHEREAS THE DECREASE IN CONDUCTIVITY OF THE ISOLATED CORTEX SEEMS TO BE DUE TO REDUCTION IN THE MEMBRANE CHARGE. THUS, SLOW ELECTRONIC WAVES MAY DIRECTLY INFLUENCE THE FUNCTION OF NERVE ELEMENTS FOR A CONSIDERABLE DISTANCE, BUT THE RAPID POTENTIALS ACT ON THE NEURONS LOCATED VERY CLOSE TO THE POINT OF ORIGIN. IN.
FACILITY: GORKY MEDICAL INSTITUTE IMENI S. M. KIROV.

UNCLASSIFIED

K

USSR

CHIRKOV, V. D., KUZOVLEV, V. V., and MANANNIKOV, A. S., Gorky Medical Institute imeni S. M. Kirov

"Impedance of the Cerebral Cortex in Relation to the Nonsynaptic Action of Biopotentials"

Moscow, Biofizika, No 1, 1970, pp 84-88

Abstract: Impedance was measured in intact and isolated portions of the cerebral cortex of adult cats at frequencies ranging from 50 to 1,500 Hz. Strychnine (1 percent solution) was applied to the normal cortex of six of the animals. The strychninized cortex, where epileptiform discharges occur, was found to have less impedance than in its normal state. The impedance of the isolated portion of cortex was higher than that of intact neocortex. Although the rapid cellular potentials provide better physical conditions for propagation through brain tissue, the slow summary waves can act over larger distances. The increased conductivity of the strychninized cortex is ascribed to the increase in ion permeability of the nerve cell membranes, whereas the decrease in conductivity of the isolated cortex seems to be due to reduction in the membrane charge. Thus, slow electrotonic waves may directly influence the function of nerve elements for a considerable distance, but the rapid potentials act on the neurons located very close to the point of origin.

1/1

UDC 632.95

3

USSR

KRUTITSKAYA, M. N., KOL'TSOV, N. S., TRIKHANOV, M. D., SHOGAM, S. M.,
DAVYDOVA, A. N., YEGOROVA, I. L., and KUZOVLEVA, M. V.

"Method of Preparing Calcium Tetrathionate"

USSR Authors' Certificate No 264363, filed 27 Dec 68, published 4 Jun 70 (from RZh-Khimiya, No 1, 10 Jan 71, Abstract No 1N588P)

Translation: CaS_4O_6 (I) is obtained in an $H_2S_4O_6$ medium by the oxidation of calcium thiosulfate (II) with perhydrol, taken in 10% excess, at 10-12°. 52 g II are added in the course of 1 hr to a 13.5 ml, 27% solution of H_2O_2, cooled to 10°, to which 96 ml $H_2S_4O_6$ (concentration 235 g/l) was added beforehand. The resultant suspension is filtered out from traces of sulfate; the filtrate is evaporated in vacuum, and the residue crystallized. 23 g of 98% dihydrate of I is obtained. The mother liquor remaining after crystallization is used to prepare $H_2S_4O_6$.

USSR UDC: 538.4

ALEKSANDROV, A. F., KUZOVNIKOV, A. A., RUKHADZE, A. A., and
SEVER'YANOV, V. V.

"Average Force Acting on a Non-Isothermic Plasma in a High-Frequency Field"

V sb. Vopr. fiz. nizkotemperaturn. plazmy (Problems in the Physics of Low-Temperature Plasmas -- collection of works) Minsk, "Nauka i tekhn." 1970, pp 144-148 (from RZh-Mekhanika, No. 2, Feb 71, Abstract No. 2B43)

Translation: The problem of the interaction of a high-frequency field with a plasma is considered on the basis of the model of two-fluid hydrodynamics. The average force acting on the plasma is represented as a surface and volume force. It is shown that, at low frequencies of the field, the surface force is much greater than the volume force; at frequencies close to the Langmuir frequency for ions, the volume force is comparable with the surface force. Author's abstract

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USSR

UDC 669.162.267.645

LEVIN, M. Z., MACHIKIN, V. I., SKLADANOVSKIY, YE. N., KUZUB, A. G., and KRASAVTSEV, I. N., Donetsk Polytechnic Institute, Donetsk Metallurgical Plant

"Desulfuration of Pig Iron with Regulatable Introduction of Ingotted Magnesium"

Moscow, Metallurg, No 2, Feb 73, pp 10-12

Abstract: From 1970 on, studies have been conducted at the Donetsk Metallurgical Plant and Donetsk Polytechnic Institute on the Development of equipment for use in the desulfuration of pig iron by regulated introduction of magnesium ingots. A new method of introducing the ingotted magnesium into liquid pig iron serves as the basis of the equipment. Diagrams show the equipment for regulated magnesium introduction and a schematic of the gas supply to the evaporator. Industrial test results are given. Two figures, one table.

1/1

Acc. Nr.: AR0113330 Ref. Code: UR0000

USSR UDC: 624.145.1

BUBLIKOVA, Yu. I. and KUZUB, G. Ya.

Novosibirsk, Tr. Novosib. In-ta Inzh. Zh-D. Transp. (Transactions of the Novosibirsk Institute of Railroad Transportation Engineering), No. 94, pp 76-80 (From Referativnyy Zhurnal--Vodnyy Transport, Abstract No. 1B22)

Translation: The physical picture of the phenomenon of ice pressure on supports with vertically cut edges is analyzed and the computational expressions for its determination are proposed. It is shown that for a large expenditure of kinetic energy of the ice field, the effect of support deformation does not reduce the computed pressure determined from ice break-up conditions. It is proposed that the least of the computed quantities from the break-up conditions as well as from its remainder be taken as the computed pressure. Five illustrations, one table, bibliography of nine.

REEL/FRAME
19930416

1/1

18

Corrosion

K 2

USSR

UDC: 620.199

TSIKMAN, A. I., DEGTYAREVA, V. K., NEYMAN, N. S., KASSINSKAYA, [illegible], KUZUB, V. S., and MURASHKINA, A. A., Severodonetsk Branch, State Institute of the Nitrogen Industry; Zhdanov Plant of Heavy Machinery

"Determining the Tendency of Kh18N10T Chromium Nickel Steel to Intergranular Corrosion by the Method of Potentiostatic Etching"

Moscow, Zashchita Metallov, Vol. 6, no. 4, Jul-Aug 70, pp 475-478

Abstract: Commercial melts of Kh18N10T and 0Kh18N10T steels were used for elaborating the process of potentiostatic etching in order to determine the tendency of steel to intergranular corrosion (TIC). A total of 88 experimental melts have shown agreement of results of potentiostatic etching (PE) with the "AM" method specified in GOST 6032-58. The new method also makes it possible to observe the nature of dissolution on a longitudinal polished end. A curve in the original article shows anodic polarization of 0Kh18N10T steel at potential application rate of 1 v/hr in 20% H_2SO_4, 50% H_2SO_4, 1 n H_2SO_4 + 0.003 n KCNS, 1 n H_2SO_4 + 0.05 KCNS. Another figure showing the anodic polarization

USSR

TSIMAN, A. I., et al, Zashchita Metallov, Vol. 6, no. 4, Jul-Aug 70, pp 475-476

curve obtained on OKh18N10T steel in 50% H_2SO_4 at a potential application rate of 1 v/hr reflects the TIC of the steel. At a potential of 0.26 v a longitudinal ground end of steel with TIC, after 30 minutes of etching, showed a clear lattice of etched grain boundaries. For steels with a strongly pronounced TIC the intergranular etching pattern appears within 10--15 minutes.

USSR

KASHPROVSKIY, VADIM YEVMENIYEVICH, and KUZUBOV, FELIKS ALEKSANDROVICH

"Ground Wave Propagation of Medium Radio Waves "(Rasprostraneniye Srednikh Radiovoln Zemnym Luchom), Moscow, Izd-vo "Svyaz'," 1970, 4,000 copies, 220 pages

Abstract: The book is devoted to practical problems of ground wave propagation of medium-frequency radio waves. The effect of the electrical properties of the earth surface, its relief, geological composition, forests on the propagation of medium and long waves is examined. The relation of types of soil and their electrical conductivity is analyzed and various methods for its determination are described. Methods for calculating the voltage field of ground waves over flat and spherical surfaces of the earth are presented.

The book is intended for engineers, scientific workers, and students of senior radio engineering courses and radio physics specialties.

The book contains 26 tables, 111 illustrations, and 64 citations in the bibliography.

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USSR

KASHPROVSKIY, VADIM YEVMENIYEVICH, and KUZUBOV, FELIKS ALEKSANDROVICH, "Ground Wave Propagation of Medium Radio Waves" (Rasprostraneniye Srednikh Radiovoln Zemnym Luchom), Moscow, Izd-vo "Svyaz'," 1970, 4,000 copies, 220 pages

The chapter headings are as follows:

		Page
Chapter 1.	Fundamental Characteristics of Medium-Frequency Radio Wave Propagation	15
Chapter 2.	Daytime Propagation of Medium- and Long-Wavelength Radio Waves	32
Chapter 3.	The Electromagnetic Field and Its Structure at the Point of Reception	102
Chapter 4.	Methods for Measuring Soil Conductivity	111
Chapter 5.	Principles for Calculating the Route of Propagation for Ground Radio Waves	202

2/2

Nitrogen Compounds

USSR

UDC 539.19+541.57

KUZYAKOV, Yu. Ya., and MOSKVITINA, Ye. N., Chair of Physical Chemistry

"Structure, Vibrational Frequencies and Thermodynamic Functions of Difluorodiazine Isomers"

Moscow, Vestnik Moskovskogo Universiteta, Vol 12, No 2, Mar-Apr 71, pp 164-167

Abstract: The structural characteristics, vibrational frequencies and thermodynamic functions of cis-N_2F_2 and trans-N_2F_2 are reviewed. An assumption was made that a third isomer, 1, 1-difluorodiazine, also exists. The inactive isomer was taken to have transconfiguration. Using geometrical parameters obtained from the microwave spectrum, thermodynamic functions were calculated for cis and trans isomers in the temperature range 100-1000°K. From these data K_p for the isomerization of $N_2F_2(\text{trans}) \rightleftarrows N_2F_2(\text{cis})$ in the temperature range 25-150°K with ΔH of the isomerization being 0.6 kcal/mol, were obtained. Some discrepancies between several K_p values are discussed.

1/1

UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--DETERMINATION OF THE MATRIX ELEMENT OF THE DIPOLE MOMENT OF AN A
PRIME2 SIGMA-X PRIME2 II ELECTRON TRANSITION IN A SIF MOLECULE -U-

AUTHOR-(04)-KUZYAKOV, YU.YA., OVCHARENKO, I.YE., KUZMENKO, N.YE.,
KURDYUMOVA, I.N.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. SPEKTROSK. 1970, 12(3), 555-7

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--SILICON COMPOUND, FLUORIDE, ABSORPTION SPECTRUM, MATRIX
ELEMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0327 STEP NO--UR/0368/70/012/003/0555/0557

CIRC ACCESSION NO--AP0119314

UNCLASSIFIED

2/2 013

UNCLASSIFIED

CIRC ACCESSION NO--AP0119314 PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ELECTRON ABSORPTION SPECTRUM
WAS TAKEN OF THE SIF MOL. BY USING IMPACT TUBE TECHNIQUE TO PREP. A
SUFFICIENT AMT. OF GASEOUS SIF. BY STARTING FROM THE EXPTL. INTENSITY
DATA, THE SQUARED MATRIX ELEMENT OF THE DIPOLE MOMENT OF A PRIME2
SIGMA-X PRIME2 II ELECTRON TRANSITION IS 5.9 PLUS OR MINUS 0.6 AT.
UNITS. THIS VALUE CORRESPONDS TO AN OSCILLATOR STRENGTH OF (4.1 PLUS OR
MINUS 0.4) TIMES 10 PRIME NEGATIVEL. REAL ACCURACY IN DETG. THE MATRIX
ELEMENT CAN BE CONSIDERABLY SMALLER OWING TO SYSTEMATIC ERRORS INVOLVED
IN SUCH QUANTITIES AS HEATS OF FORMATION OF SIF, SIF SUB2, ETC. AND
FRANCK CONDON FACTORS.

UNCLASSIFIED

JPRS 59208
6-73

8

Kuzymina, G.A.

XI-5. OBTAINING COMPENSATED MATERIALS IN THE MERCURY TELLURIDE AND CADMIUM TELLURIDE SYSTEM

[Article by N. V. Vladimirov, Ye. V. Kalashnikova, V. I. [illegible], G. A. Kuzmina, V. M. Morozov, A. A. [illegible], [illegible] Irkutsk; [illegible] Russian, 12-17 June 1972, p 134]

In this paper a study is made of the possibility of obtaining materials with maximum compensation of the characteristic electrically active states.

The large crystalline and monocrystalline bars were obtained by the Bridgman method. Determination of the composition along the bar permitted some refinement of the position of the solidus line on the diagram of state.

A study was made of the compensation of electrically active centers by alloying in a melt and by annealing the crystals in the vapors of the components. The properties of the materials obtained were determined both by optical and by galvano-magnetic measurements.

There is a detailed discussion of the problem of determining the composition of solid solutions by different methods.

USSR

UDC 621.791.89:620.193.41

DENYACHENKO, O. A., North Donets Chemical Combine, and KIZYUROV, A. N., North Donets Brancy of the Scientific Research Institute of Chemical Machine Building

"Nitric Acid Corrosion Resistance of Aluminum Joints Formed by Explosive Welding"

Kiev, Avtomaticheskaya Svarka, No 4, Apr 71, pp 26-29

Abstract: Nitric acid corrosion resistance of aluminum lap joints made by explosive welding was investigated. The purpose of the study was to determine the basic principles governing corrosion behavior of joints produced by explosive welding. Aluminum grade AT was used. The necessary condition for high corrosion resistance in explosive welding of aluminum is selection of modes which provide joints with a rectangular interface. Joints with a rectangular interface are close to those of the base metal with reference to corrosion resistance and significantly surpass joints which have a wavy interface. Heat treatment does not substantially affect the corrosion resistance of joints produced by explosive welding. Five figures, one table, 7 bibliographic references.

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027

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--MEANS FOR LOWERING THE CORROSION OF SOME STEELS EXPOSED TO THE ACTION OF SULFUR COMPOUNDS OF FLUE GASES -U-

AUTHOR-(02)-KUZYUKOV, A.N., ZAYTSEVA, L.V.

COUNTRY OF INFO--USSR

SOURCE--KHIM. NEFT. MASINOSTR. 1970, (3), 20-1

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--SULFUR COMPOUND, CORROSION RATE, AMMONIA, CARBONATE, CARBON STEEL, CHROMIUM STEEL, METAL CORROSION TEST, ALLOY STEEL, ORE BENEFICIATION EQUIPMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1675

STEP NO--UR/0314/70/000/003/0020/0021

CIRC ACCESSION NO--AP0118653

UNCLASSIFIED

2/2 027
CIRC ACCESSION NO--AP0118653 UNCLASSIFIED PROCESSING DATE--23OCT70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO MITIGATE OPERATIONAL AND
PROCESS DIFFICULTIES OWING TO THE SEVERE CORROSION OF PLANT EQUIPMENT
MADE OF GRADE ST. 3, PLAIN C STEEL (SCRUBBERS, FLUE GAS EXHAUST TUBES,
AND PIPELINES), ENCOUNTERED IN AN APATITE BENEFICIATION AND FLOTATION
COBINE, AND ASCRIBED TO A COMBINED ATTACK BY SO SUB2, SO SUB3, AND H
SUB2 O AT TEMPS. BELOW THE DEW PT., A SERIES OF LAB. AND ON PLANT TESTS
WAS PERFORMED TO DET. THE EFFECT OF NH SUB3 AND NA SUB2 CO SUB3 SOLNS.
ON LOWERING THE CORROSION OF PLAIN C AND ALLOY STEELS EXPOSED TO FLUE
GAS ENVIRONMENTS CONTG. S COMPDS. INTRODUCED BY THE COMBUSTION OF S
CONTG. BLACK OILS. AT 55DEGREES, THE CORROSION RATE OF THE ST. 3 STEEL
IN H SUB2 SO SUB4 VAPORS (1.025 MM-YR) WAS SLIGHTLY LOWER THAN THAT IN
HUMID SO SUB2 (1.61 MM-YR), WHILE STAINLESS STEELS CORRODED MORE RAPIDLY
IN H SUB2 SO SUB4 VAPORS THAN IN SO SUB2. IN ADDN. TO GENERAL
CORROSION, LOCAL CREVICE AND PITTING CORROSION WERE OBSD. WHEN NH SUB3
WAS INTRODUCED THE OCRROSION RATE OF THE ST. 3 STEEL WAS LOWERED BY A
FACTOR OF 5.0-13.5 AND LOCAL CORROSION WAS ELIMINATED. THE CORROSION
RATES OF CR STEEL GRADES WERE LOWERED BY A FACTOR OF 5-15 BUT PITTING
WAS NOT AVOIDED COMPLETELY. THE ON PLANT TESTS, CONDUCTED FOR 2500 HR
AT 55DEGREES, REVEALED THAT A 2-3 FOLD REDN. IN THE CORROSION RATE CAN
BE EXPECTED WHEN A 10PERCENT NA SUB2 CO SUB3 SOLN. IS INTRODUCED INTO
THE SCRUBBERS INSTEAD OF PLAIN WATER.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--20NOV70

1/2 057

TITLE--EFFECT OF AN EXPLOSION ON A SUBSTANCE. CRYSTALLOGRAPHIC ASPECTS OF
PHASE TRANSITIONS IN BORON NITRIDE -U-

AUTHOR-(03)-BATSANOV, S.S., MOROZ, E.M., KUZYUTIN, V.P.

COUNTRY OF INFO--USSR

SOURCE--ZH. STRUKT. KHIM. 1970, 11(1), 156-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--CRYSTALLOGRAPHY, BORON NITRIDE, EXPLOSION, GRAPHITE,
COMPRESSION SHOCK WAVE, PHASE TRANSITION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/0921 STEP NO--UR/0192/70/011/001/0156/0158

CIRC ACCESSION NO--AP0116431
UNCLASSIFIED

PROCESSING DATE--20NOV70

UNCLASSIFIED

2/2 057

CIRC ACCESSION NO--AP0116431

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE YIELD OF THE DENSE FORM OF BN, OBTAINED BY EXPLOSIVE COMPRESSION OF HEXAGONAL BN, INCREASES WITH INCREASING DEGREE OF PERFECTION IN THE LATTICE OF HEXAGONAL BN (BATSANOV, ET AL., 1968). THE STRUCTURE OF HEXAGONAL BN WAS STUDIED IN MORE DETAIL TO EXPLAIN THE MECHANISM OF THE TRANSITION TO THE DENSE FORM. THE PACKING OF HEXAGONAL BN IS VERY LOOSE BEFORE ANNEALING; THE MAIN DEFECTS ARE PARALLEL SHIFTS OF THE BN PLANES RELATIVE TO EACH OTHER. ANNEALING (1000-2000DEGREES) REMOVES THE DEFECTS BOTH WITHIN AND BETWEEN THE LAYERS AND EVIDENCED BY THE SHARPENING OF THE 002 LINE AND ITS SHIFT TOWARDS GREATER BRAGG ANGLES. ON THE OTHER HAND, EXPLOSIVE COMPRESSION SHARPENS THE 002 LINE BUT DOES NOT SHIFT ITS POSITION, SHOWING THAT ONLY DEFECTS WITHIN THE LAYERS ARE REMOVED. SUBSEQUENT ANNEALING OF THE EXPLOSIVELY COMPRESSED SAMPLES SHIFTS THE 002 LINE TO GREATER BRAGG ANGLES WITH SOME INCREASE IN THE LINE WIDTH. THE MECHANISM OF THE TRANSITION, BN (COORDINATION NO. 3) YIELDS BN (COORDINATION NO. 4), IS ANALOGOUS TO THE GRAPHITE YIELDS DIAMOND TRANSITION. EXPLOSIVE COMPRESSION FOLDS THE HEXAGONAL BN LAYERS AND FORCES THE ATOMS CLOSER TOGETHER, MAKING IT EASIER TO FORM THE NEW BONDS. THE FORMATION OF THE SPHALERITE TYPE MODIFICATION OF BN IS DISCUSSED. FACILITY: INST. TEPLOFIZ., NOVOSIBIRSK, USSR.

UNCLASSIFIED

Explosives and Explosions

UDC 532.593-546.273-548.33

USSR

BATSANOV, S.S., MOROZ, E.M., KUZYUTIN, V.P., Institute of Heat Physics of the Siberian Division of the USSR Academy of Sciences, Novosibirsk

"Action of Explosion on Materials Crystallographic Study of Phase Transition in Boron Nitride"

Moscow, Zhurnal Strukturnov Khimii, Vol 11, No 1, 1970, pp 156-158

Abstract: A study was made of the actual structure of hexagonal BN preceding phase transition upon shock compression. A comparison was made of the molar volumes of hexagonal BN of differing densities with corresponding values of the true volume of the formula unit. A plot of volume of cell of hexagonal CN as a function of density showed that turbo-stratified BN has a very loosing packing. Its volume is 1.35 times greater than the true molecular volume. However, the small variation in the X-ray volume in the transition from almost amorphous to well crystallized state (only 5 percent) indicates that the main defects are parallel shifts of planes relative to each other. Results of shock compression of turbostratified BN (d= 1.64-1.72 grams/cm^3) increased its density 2.04-2.07 grams/cm^3. The authors thank R.S. ERENBURG and V.S. CHERKASSKIY for their assistance in the work.

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1/3 031 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--DETERMINATION OF DECELERATION IN BASE RADAR OBSERVATION OF METEORS -U-

AUTHOR-(04)-GULMEDOV, KH.D., KVACHADZE, G.P., LAGUTIN, M.F., SMAGIN, O.M.

COUNTRY OF INFO--USSR

SOURCE--EZVESTIYA AKADEMII NAUK TURKMENSKOY SSR, SERIYA FIZIKO-TEKHNICHESKIKH, KHIMICHESKIKH I GEOLOGICHESKIKH NAUK, NO 3, 1970,

DATE PUBLISHED-------70

SUBJECT AREAS--NAVIGATION, ATMOSPHERIC SCIENCES, ASTRONOMY,ASTROPHYSICS

TOPIC TAGS--RADAR METEOR OBSERVATION, DECELERATION, ATMOSPHERE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0389 STEP NO--UR/0202/70/000/003/0122/0124

CIRC ACCESSION NO--AP0137485

UNCLASSIFIED

2/3 031 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AP0137485

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KHAR'KOV INSTITUTE OF RADIO ELECTRONICS, JOINTLY WITH THE INSTITUTE OF PHYSICS OF THE EARTH AND ATMOSPHERE ACADEMY OF SCIENCES TURKMEN SSR, IN 1968 COMPLETED WORK ON A BASE RADAR COMPLEX. THIS OUTFIT INCLUDES SIC HIGHLY STABLE TRANSMITTING SYSTEMS ORIENTED ALONG A WEST-EAST DIRECTION, APPROXIMATELY UNIFORMLY OVER A DISTANCE OF 42 KM. THE RECEIVING CENTER WITH A PULSED RANGE FINDER WAS SITUATED AT THE ASTROPHYSICAL OBSERVATORY AT VANNOVSKIY AND WAS SHIELDED BY MOUNTAINS FROM THE DIRECT WAVES OF THE TRANSMITTERS. THIS PAPER GIVES THE RESULTS OF DETERMINATIONS OF THE DECELERATION OF INDIVIDUAL METEORS IN THE EARTH'S ATMOSPHERE ON THE BASIS OF MEASUREMENTS MADE DURING APRIL-MAY 1969. ASSUMING A LINEAR APPROXIMATION OF THE CHANGE IN VELOCITY V WITH TIME, THE LEAST SQUARES METHOD WAS USED IN COMPUTING MEAN METEOR DECELERATION. FOR 84 METEORS REGISTERED IN THE MIDDLE SEGMENT OF THR TRAIL DECELERATION WAS MEASURED AT NOT LESS THAN THREE POINTS ALONG THE TRAIL AND WAS 33 KM-SEC PRIME2. THE MEASUREMENT RESULTS WERE EXAMINED FOR DIFFERENT VELOCITY RANGES: 25-35, 35-45, 45-55, 55-70 KM-SEC. A TABLE GIVES ALL PERTINENT DATA: N, NUMBER OF PROCESSED MEASUREMENTS, BAR V, MEAN VELOCITY, BAR A, MEAN DECELERATION, AND DELTA BAR A, MEAN SQUARE ERROR IN BAR A. THE DETERMINED DEPENDENCE OF ACCELERATION ON VELOCITY IS COMPARED WITH THE DEPENDENCE OBTAINED BY F. VERNIANI (SMITH CONTR. TO ASTROPHYS., 1966). IN BOTH CASES THE DEPENDENCE WAS THE SAME AND APPROXIMATELY LINEAR.

UNCLASSIFIED

3/3 031 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0137485

ABSTRACT/EXTRACT--IF IT IS POSTULATED THAT MOST REFLECTION STATISTICS APPLY TO THE PART OF THE TRAIL WITH MAXIMUM IONIZATION (OR CLOSE TO IT), IT IS SHOWN THAT ONE CAN MAKE A THEORETICAL DETERMINATION OF THE LOSS OF VELOCITY WITH ALTITUDE FOR THE ENTIRE GROUP OF MEASURED METEORS. FOR 39 METEORS THE AUTHORS FOUND: BAR V EQUALS 54 KM-SEC; DELTA BAR H EQUALS 2.55 PLUS OR MINUS 0.17 KM; DELTA VAR V-DELTA H EQUALS 1.1 PLUS OR MINUS 0.1 KM-SEC. THIS MEAN VALUE OF LOSS OF VELOCITY WITH ALTITUDE IS AN ORDER OF MAGNITUDE GREATER THAN THE CORRESPONDING VALUE COMPUTED THEORETICALLY FOR POINTS ON A TRAIL CLOSE TO THE POINT OF MAXIMUM IONIZATION. FACILITY: INSTITUTE OF PHYSICS OF THE EARTH AND ATMOSPHERE, ACADEMY OF SCIENCES TURKMEN SSR; ASHKHABAD.

UNCLASSIFIED

UDC 577.3

USSR

UKOLOVA, M. A., and [redacted]

"The Effect of a Magnetic Field on Experimental Tumors (Directly and Through the Nervous System)"

Vliyaniye Magnitnykh Poley na Biologicheskiye Ob"yekty, pp 147-164

Abstract: In experiments on rats, an investigation was made of the effect of constant and intermittent (low-frequency) magnetic fields on the growth of transplanted and induced tumors. The action of the field was either applied directly to the tumor or to the animal's head, or these methods were combined. Frequent application of the magnetic field led to resorption of the experimental tumor. The effect was intensified where Udenfrind's reagent or adrenalin was additionally introduced into the organism. During action by the magnetic field on the head, an intensification of tissue respiration, aerobic glycolysis, and phosphorylation and an increase in the excitability of the hypothalamus were noted. In addition, there was an increase in the level of cholinesterase in the blood, a reduction in the total number of SH-groups in the adrenal glands, and an increase in the thyroid gland, where hypersecretion was detected under the influence of the magnetic field by an additional histological method. In this manner, activation of the autonomic and endocrine elements of regulation accomplished by the

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USSR

UKOLOVA, M. A., and KVAKINA, Ye. B., Vliyaniye Magnitnykh Poley na Biologicheskiye Ob"yekty, pp 147-164

hypothalamus is one of the mechanisms by which a magnetic field affects tumor growth.

Oncology

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USSR

UDC 616-006-092.9-02:615.847.8

UKOLOVA, M. A., and KVAKINA, Ye. B., Rostov Scientific Research Oncology Institute, Ministry of Public ~~Health RSFSR~~

"The Effect of Magnetic Fields on Tumor Growth"

Leningrad, Voprosy Onkologii, Vol 16, No 2, 1970, pp 88-91

Abstract: A study was made of the effect of a weak magnetic field on tumors induced with 3,4-benzpyrene (sarcomas) and on first generations of transplanted sarcomas obtained from the induced ones. Experiments were conducted on 264 rats exposed to the action of a magnetic field after the tumors reached an average size of 0.41 ± 0.06 cubic centimeters (the induced ones -- 3.5-4 months after the first injection of carcinogen and the transplanted ones -- 7-10 days after transplantation). Some of the rats received an adrenalin injection in addition to the magnetic field exposure. Experiments on rats with transplanted "benzpyrene" sarcoma showed that the magnetic field caused an inhibition of tumor growth down to complete resorption, both in direct action on the tumor and in action only on the head of the animal. The antineoplastic effect of the magnetic field was intensified in animals receiving adrenalin. The intensifying influence of adrenalin

USSR

UKOLOVA, M. A., et al, Voprosy Onkologii, Vol 16, No 2, 1970, pp 85-91

was also noted in experiments with animals where a constant magnetic field (not a rotatory one) with an intensity of 2500 gauss was used, which by itself was not very effective. Two series of experiments were conducted on rats with induced tumors. In the first series, the magnetic field was applied on alternate days over the head and over the tumor. After one month, the average size of the tumor in experimental animals was 12 times smaller than in controls. Then, regardless of the continued exposure, all the tumors except one began to grow at a fast rate. However, the experimental animals lived 39-49 days, while controls lived 25-32 days. In the second series of experiments, the magnetic field was applied daily to two groups of rats, one group receiving the exposure on their heads and the other group on their tumors. While the tumors of all the control animals were distinguished by rapid growth, tumor development in experimental animals was inhibited. The tumors of five of the 12 experimental animals were completely resorbed, four after magnetic field action on the head and one after action on the tumor. As a result of the experiments conducted, it was determined that under the action of a magnetic field, inhibition of growth down to complete resorption can be obtained both in transplanted and in induced tumors.

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USSR UDC: 517.63

KVAL'VASSER, V. I., KIRSHBAUM, V. I.

"Inversion of Laplace Transform for Functions Allowing Expansion into Generalized Power Series"

Sb. Tr. Po Fiz.-Matem. Naukam [Collected Works on Physics-Mathematical Sciences], Kuybyshev, 1969(1970) pp 74-76, (Translated from Referativnyy Zhurnal Matematika, No. 8, 1970, Abstract #8B25, by V. Amerbayev).

Translation: The following statement is established: if the transform $\bar{f}(p)$ satisfies the conditions of the theorem of expansion into a generalized power series

$$\bar{f}(p) = p^{\alpha}\sum_{k} c_k p^{k\beta},$$

then after the replacement $q = p^{\beta}$ the desired coefficients c_k can be produced as coefficients of the Maclaurin series of the function

$$G(q) = q^{-\alpha/\beta}\bar{f}(q^{1/\beta}).$$

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1/2 022 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--INCREASE IN THE STABILITY OF THE GRATE BARS OF SINTERING MACHINES
-U-
AUTHOR-(05)-FELDMAN, B.A., NEIGEBAUER, G.O., GALEMIN, I.V., KVANOV, V.A.,
TERLIKOVSKIY, V.I.
COUNTRY OF INFO--USSR

SOURCE--METALLURG (MOSCOW) 1970, 15(1), 6-8

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DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--SINTERING FURNACE, MATERIAL FAILURE, CAST IRON, HIGH CARBON
STEEL, CHROMIUM STEEL/(U)CSH18 36 CAST IRON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/1934 STEP NO--UR/0130/70/025/001/0006/0001

CIRC ACCESSION NO--AP0108263
UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--02OCT70
CIRC ACCESSION NO--AP0103263
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UNITL RECENTLY THE KARAGANDINSK METALLURGICAL PLANT USED BARS FOR SINTERING MACHINES MADE FROM CSH18-36 GRAY CAST IRON WITH A LIFE OF 4 MONTHS AND A CONSUMPTION OF 400 G-TON OF SINTER. VARIOUS ALLOYS WITH DIFFERENT CR AND FE CONCNS. WERE TRIED. BEST WAS 68 ALLOY CONTG.: C 1.10, CR 19.07, SI 2.00PERCENT. THE NEW BARS LAST 1.5-2 YR.

UNCLASSIFIED

USSR

UDC: None

MERMANISHVILI, L. L., TIGILAURI, G. A., SIMONISHVILI, T. G., KVANTALIANI, G. A., and KOVSHOV, L. F.

"Device for Recording Information on Electrochemical Paper"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 4, 1973, p 117, No 364003

Translation: The item contains number registers connected with decoders whose outputs are joined to shapers connected through AND circuits with the inputs of the recording unit, which is connected with scaling and synchronization units, distinguished in that, for the purpose of providing printed information in the form of combinations of points in two colors, it contains an automatic marking unit connected with the inputs of a nulling device for the number registers and with controlling inputs from each of the decoders.

The device of paragraph 1 above is distinguished in that the count input of the channel counter in the automatic marking unit is connected, through one of the delay lines, to one of the AND and OR circuits respectively, the outputs of which are connected through a decoder to the second inputs of the AND circuits, whose outputs are connected with the other inputs of the OR circuits.

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Industrial

USSR UDC 539.374

KOPYLOVSKIY, KH. I., and KVANTUK, V. B.

"Deformation of the Material During the Drawing of a Round Rod"

Tr. Irkutsk. Politekhn. In-ta (Works of the Irkutsk Polytechnic Institute), No 65, 1971, pp 29-34 (from Referativnyy Zhurnal, Mekhanika, No 2, Feb 72, Abstract No 2V441 by Ye. M. Tret'yakov)

Translation: In the article are presented the results of an experimental investigation of the deformation of a blank; these results were obtained by the net-point method during the drawing of a round copper rod. A coordinate network with a spacing of 0.5 mm was applied by a corundum needle to the polished meridional surface of a detachable sample that was subjected to drawing with lubrication and with reduction by 15%. Graphs of change of the linear dimensions and angles of the initial coordinate network along the flow lines were constructed. Curves of change of the deformation-rate tensor components along the flow lines are presented, and the character of deformation of the sample during drawing is discussed.

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1/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--IMPROVED METHOD FOR PREPARING A CATALYST FOR THE VAPOR PHASE SYNTHESIS OF VINYL CHLORIDE -U-

AUTHOR-(05)-PANFILOV, A.A., VASILYEVA, I.B., KAMENKO, B.L., GAVRILCHUK, N.M., KVARTALNOV, V.V.

COUNTRY OF INFO--USSR

K

SOURCE--KHIM. PROM. (MOSCOW) 1970, 46(3), 177-9

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CATALYTIC ORGANIC SYNTHESIS, VINYL CHLORIDE, MERCURY COMPOUND, ACTIVATED CARBON, CHLORINATION, ACETYLENE, CATALYST ACTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1662 STEP NO--UR/0064/70/046/003/0177/0179

CIRC ACCESSION NO--AP0125284
UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125284

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ADSORPTION ISOTHERM OF HGCL SUB2 FROM AQ. SOLNS. ON ACTIVATED C IS PRACTICALLY LINEAR AND THE HGCL SUB2 CONCN. ON THE C INCREASES FROM 0 TO 17PERCENT WHEN THE INITIAL HGCL SUB2 IN THE SOLN. IS INCREASED FROM 0 TO 5PERCENT (AT 20DEGREES); THE ADSORPTION IS FAIRLY RAPID AND A STEADY STATE IS ESTABLISHED AFTER SIMILAR TO 1 HR. A CATALYST CONTG. 10PERCENT HGCL SUB2 WAS PREPD. BY PASSING A 3PERCENT AQ. SOLN. OF HGCL SUB2 THROUGH A COLUMN PACKED WITH ACTIVATED C, AND DRYING THE PRODUCT IN CONTACT WITH AIR HEATED TO 120DEGREES. IN THE HYDROCHLORINATION OF C SUB2 H SUB2 AT A C SUB2 H SUB2:HCL VOL. RATIO OF 1:1.3 AND 180DEGREES THE ACTIVITY OF THE CATALYST INCREASED GRADUALLY WITH TIME AND THE MAX. ACTIVITY WAS REACHED AFTER 120 DAYS (AT A FLOW RATE OF 1100 VOLS.-HR); THE MAX. ACTIVITY WAS THEN SUSTAINED FOR UP TO 8 MONTHS, AND THE DEGREE OF CONVERSION OF C SUB2 H SUB2 UNDER THOSE CONDITIONS WAS NEARLY 80PERCENT.

UNCLASSIFIED

USSR UDC 658.5.681.14-523.8

MAKSIMOV, YU. P., Candidate of Economic Sciences, and KVARTAL'NOVA, V. V., Engineer

"Computer-Aided Mechanization of Technical and Economic Planning"

Moscow, Mekhanizatsiya i Avtomatizatsiya Proizvodstva, No 10, 1970, pp 42-44

Abstract: The article describes the experience of the Frezer Plant in introducing a computer into production control. An analysis from the standpoint of computer storage, speed of response of its arithmetic unit, and its logical capabilities indicated that a computer could be used to help mechanize technical and economic calculations for the following sections of the technical, industrial, and financial plan: the production plan, labor and wage plan, and production cost plan. Mechanization of the individual technical and economic calculations entailed certain difficulties in the algorithmization of existing manual methods for calculating technical and economic indices, as well as adapting the standard business of the plant to the conditions of computer utilization and creating an efficient technical and economic data-processing system. It was

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MAKSIMOV, YU. P., and KVARTAL'NOVA, V. V., Mekhanizatsiya i Avtomatizatsiya Proizvodstva, No 10, 1970, pp 42-44

found that the solution of these questions took over 80 percent of the time to create and introduce the mechanized system. The complexity of solving these questions lies in the need to program a large number of so-called auxiliary support calculations, as well as organizing support services for calculations and coordinating the programming of calculations. The Frezer Plant has a network schedule to coordinate the programming and introduction of computer-aided technical and economic calculations. Programming costs are minimized by standardizing algorithms for the solution of a certain range of problems; standardizing program blocks; organizing an efficient data-recording, reading, and storage system (using magnetic tape); and developing a system for efficiently organizing the solution of a complex of technical and economic calculations, with allowance made for the optimum workload of computer units and the minimum total solution time. A detailed description is included of the data-recording, reading, and storage system.

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USSR

UDC 547.963.3

VANYUSHIN, B. F., GALIYEV, M. S., KVARATSKHELIYA, M. T., and KOKURINA, N. A., Chair of Plant Biochemistry, Moscow State University imeni M. V. Lomonosov, and Laboratory of Bacterial Fertilizers, All Union Scientific Research Institute of Agricultural Microbiology

"The DNA Composition of Bacillus Megatherium Variants Obtained Through the Action of Certain Phages"

Moscow, Biologicheskiye Nauki, No 5 (89), 1971, pp 82-85

Abstract: A study of the mutability of microorganisms was performed on the basic strains P-57 and 28 of Bacillus megatherium. Mutants were obtained through exposure of these strains to phages and to ultraviolet light. DNA composition was determined by chromatography. While the DNA of the basic Bac. megatherium cultures belong to the AT type and had 41% of GC pairs, mutants 769 and 771 obtained from the P-57 strain by the action of phage FK form wrinkled colonies, and their DNA contains 41.9% and 43.1% GC pairs respectively. Through the action of phage 201, dissociation of Bac. megatherium strain 28 can proceed without changes in DNA composition, giving rise to mutant 2875. Similarly, DNA composition in the ultraviolet mutant 122 is identical with that in the basic strain P-57. No methylated bases (5-methylcytosine or N^6-methyladenine) were found in the DNA of any of the above-mentioned cultures.

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1/2 014 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--KINETICS OF TWO CONSECUTIVE ELECTROCHEMICAL PROCESSES -U-

AUTHOR--KVARATSKHELIYA, R.K.

K

COUNTRY OF INFO--USSR

SOURCE--SOOBSHCH. AKAD. NAUK GRUZ. SSR 1970, 57 (2), 345-7

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ELECTROCHEMICAL REACTION, REACTION KINETICS, ELECTROLYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605013/B06 STEP NO--UR/0251/70/057/002/0345/0347

CIRC ACCESSION NO--AP0140349

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140349

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FOR 2 CONSECUTIVE ELECTROCHEM. REACTIONS WHICH PROCEED ACCORDING TO THE SCHEME A YIELDS B AND B YIELDS C IN AN IRREVERSIBLE MANNER, THE RATES AND YIELDS OF THE INTERMEDIATE AND FINAL PRODUCTS DEPEND ON THE INITIAL DEPOLARIZER CONCN., THE DIFFERENCE OF THE ELECTROCHEM. EQUIVS. OF THE INTERMEDIATE AND FINAL PRODUCTS, AND THE DIFFERENCE OF THE ACTUAL POTENTIALS OF THESE REACTIONS. THUS, THE HIGHER THE INITIAL CONCN. OF DEPOLARIZER A, THE GREATER THE RATE OF THE 1ST PROCESS AND THE MORE PROBABLE THE ACCUMULATION OF THE SUBSTANCE B IN THE ELECTROLYTE. THE GREATER THE DIFFERENCE BETWEEN THE ELECTROCHEM. EQUIVS. OF SUBSTANCE B (1ST REACTION) AND SUBSTANCE C (2ND REACTION), THE LESS OF SUBSTANCE B WILL BE EXPENDED TO FORM C DURING THE ELECTROLYSIS. FACILITY: INST. NEORG. KHIM. ELEKTROKHIM., TBILISI, USSR.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--COLORED ANTISTATIC RUBBERS BASED ON POLAR RUBBER AND AMMONIUM THIOCYANATE -U-

AUTHOR-(02)-KVARDASHOV, V.P., KORNEV, A.YE.

K

COUNTRY OF INFO--USSR

SOURCE--KAUCH. REZINA 1970, 29(3), 47

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ANTISTATIC ADDITIVE, ELASTOMER, AMMONIUM COMPOUND, THIOCYANATE, NITRILE RUBBER/(U)SKN26 NITRILE RUBBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0848 STEP NO--UR/0138/70/029/003/0047/0047

CIRC ACCESSION NO--AP0124513

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124513

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A NOVEL METHOD DEVELOPED FOR THE PREPN. OF ANTISTATIC ELASTOMERS FROM POLAR SKN-26 RUBBER AND 10 PARTS NH SUB4 SCN IMPROVED THEIR CHEM. STABILITY. FACILITY: MOSK. INST. TONKOI KHIM. TEKHNOL. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--ELECTRICAL PROPERTIES OF CURED RUBBERS BASED ON BUTADIENE NITRILE RAW RUBBER VULCANIZED BY TETRAMETHYLTHIURAM DISULFIDE -U-

AUTHOR-(02)-KVARDASHOV, V.P., KORNEV, A.YE.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(1), 116-18

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--ELECTRIC PROPERTY, BUTADIENE, NITRILE RUBBER, VULCANIZATION, ORGANIC SULFUR COMPOUND, THIOCYANATE, ELECTRIC CURRENT, PHTHALIC ANHYDRIDE, HYDROQUINONE, HEXAMETHYLENETETRAMINE/(U)SKN26 NITRILE RUBBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0781 STEP NO--UR/0153/70/013/001/0116/0118

CIRC ACCESSION NO--AP0124450

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124450

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SKN-26 RUBBER (I) VULCANIZED WITH (ME SUB2 NCS) SUB2 S SUB2 AT 143DEGREES HAD A MARKEDLY LOWER ELEC. BULK RESISTANCE (RHO) DUE TO THE FORMATION OF A CHARGE TRANSFER COMPLEX BETWEEN THE DECOMPN. PRODUCTS OF ME SUB2 NCS SUB2 H. AN ELEC. CURRENT FLOWING THROUGH I VULCANIZATES WAS A LINEAR FUNCTION OF VOLTAGE. INTRODUCTION OF PHTHALIC ANHYDRIDE, BZOH, (PHNH) SUB2 C:NH, HEXAMETHYLENETETRAMINE, HYDROQUINONE, OR IODINE CAUSED A FURTHER DECREASE IN RHO. FACILITY: MOSK. INST. TONKOI KHIM. TEKHNOL. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 031 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--SILICATE LINED CAST IRON PIPES -U-

AUTHOR-(04)-CHERNYAVSKIY, I.YA., MILLER, S.N., KVARNBERG, A.F., OSHCHEPKOV, G.I.

K

COUNTRY OF INFO--USSR

SOURCE--GER. 1,558,346

DATE PUBLISHED--02JAN70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CAST IRON, SILICATE, SAND, ORE, SLAG, CONCRETE, PROTECTIVE COATING, PIPE, CHEMICAL COMPOSITION, METAL COATING, PROTECTIVE COATING, CHEMICAL PATENT, MATERIAL HANDLING EQUIPMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1985/0928 STEP NO--GY/0000/70/000/000/0000/0000

CIRC ACCESSION NO--AA0101234
UNCLASSIFIED

2/2 031 UNCLASSIFIED PROCESSING DATE--18SEP70
CIRC ACCESSION NO--AA0101234

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TUBES WHICH ARE USEFUL E.G. FOR THE TRANSPORT OF ABRADING MATERIAL (CONCRETE, SLAG, SAND, ORES) CONSISTS OF A CAST IRON SHEATHING AND AN INNER LINING OBTAINED BY APPLYING A SILICATE MELT CONTG. E.G. SIO SUB2 40-1, CAO 45-7, AL SUB2 O SUB3 5-7, MGO 5-6, MNO 0.25, FEO 0.47, S 0.56PERCENT, THE SILICATE LINING EXTENDING OVER THE WHOLE LENGTH OF THE TUBE AND BEING TAPERED AT THE ENDS OF THE TUBE AT AN ANGLE OF 5-20DEGREES.

UNCLASSIFIED

USSR

Aluminum and Its Alloys

USSR

UDC 669.715(031)

KVASOV, F. I., FRIDLYANDER, I. N., Editors

"Commercial Malleable, Sintered and Casting Aluminum Alloys"

Promyshlennye Deformiruemye, Spechennye i Liteynye Alyuminievye Splavy [English Version Above], Moscow, Metallurgiya Press, 1972, 552 pp.

Translation of Annotation: This book describes the structure and properties of all commercial malleable, sintered and casting aluminum alloys. The alloys are divided into groups as functions of their properties, purpose and chemical composition.

Extensive experience is summarized on the creation of new alloys, as well as the study and refinement of standard alloys. The conclusion of the book presents detailed comparative data on the mechanical properties at room temperature, high and low temperatures, the physical and corrosion properties of malleable, casting and sintered aluminum alloys.

The book is designed for engineering-technical and scientific workers in the metallurgical, machine building, defense, motor vehicle, shipbuilding and other industries. It may be useful to university students as well. 240 Figures; 244 Tables; 548 Biblio. Refs.

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USSR

KVASOV, F. I., FRIDLYANDER, I. N., Promyshlennye Deformiruemye, Spechennye i Liteynye Alyuminievye Splavy, Metallurgiya Press, 1972, 552 pp.

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KVASOV, F. I., FRIDLYANDER, I. N., Promyshlennye Deformiruemye, Spechennye i Liteynye Alyuminievye Splavy, Metallurgiya Press, 1972, 552 pp.

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USSR K UDC 535.02

KORNIYENKO, L. S., KHARTSOV, N. V., LARIONTSEV, YE. G.,
Academician PROKHOROV, A. M.

"Some Properties of a Solid-State Laser With Large Resonator Length"

Moscow, Doklady Akademii Nauk SSSR, Vol 193, No 6, 1970, pp 1280-1282

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KORNIYENKO, L. S., et al, Doklady Akademii Nauk SSSR, Vol 193, No 6, 1970, pp 1280-1282

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UDC 632.95

BLIZNYUK, N. K., PROTASOVA, L. D., and KVASHA, A. N., All-Union Scientific Research Institute of Phytopathology, Moscow, Ministry of Agriculture USSR

"Method of Preparing Tin-Containing Dithiophosphonates"

USSR Authors' Certificate No 248673, filed 7 May 68, published 22 Jan 70, (from RZh-Khimiya, No 20 (II), 25 Oct 70, Abstract No 20 N554P by S. LYUBARSKAYA)

Translation: Compounds of the formula $[ZOP(S)(OR)OSn(R_2')]_2O$ (I; R = alkyl, aryl, aralkyl; R' = alkyl; Z = substituted or unsubstituted aryl) are obtained by the interaction of the anhydride of dithiophosphonic acid with bis-(arylhydroxydialkyltin)-oxide at 50-100°. To a solution of 0.014 mole $(MePS)_2S_2$ in 10 ml ClPh is added 0.007 mole $[2,4,5\text{-}Cl_3\text{-}C_6H_2OSn(Bu_2)]_2O$, and on conclusion of the exothermic reaction it is heated for 2 hours in a boiling water bath; the solvent is distilled off and bis-(2,4,5-trichlorophenoxymethyldithiophosphinyldibutyltin)- oxide, $n^{20}D$ 1.6005, melting point 87-90°, is obtained. Analogously obtained are the following I (R' = Bu; given are R, A, melting or softening point, $n^{20}D$): Me, alpha-naphthyl, 47-50, --; Ph, 2,4-$Cl_2C_6H_3$, 58-60, --; Ph, p-$NO_2C_6H_4$, 50-2, 1.635; $PhCH_2$, Ph, 52-4, 1.6083; $PhCH_2$, 2,4-

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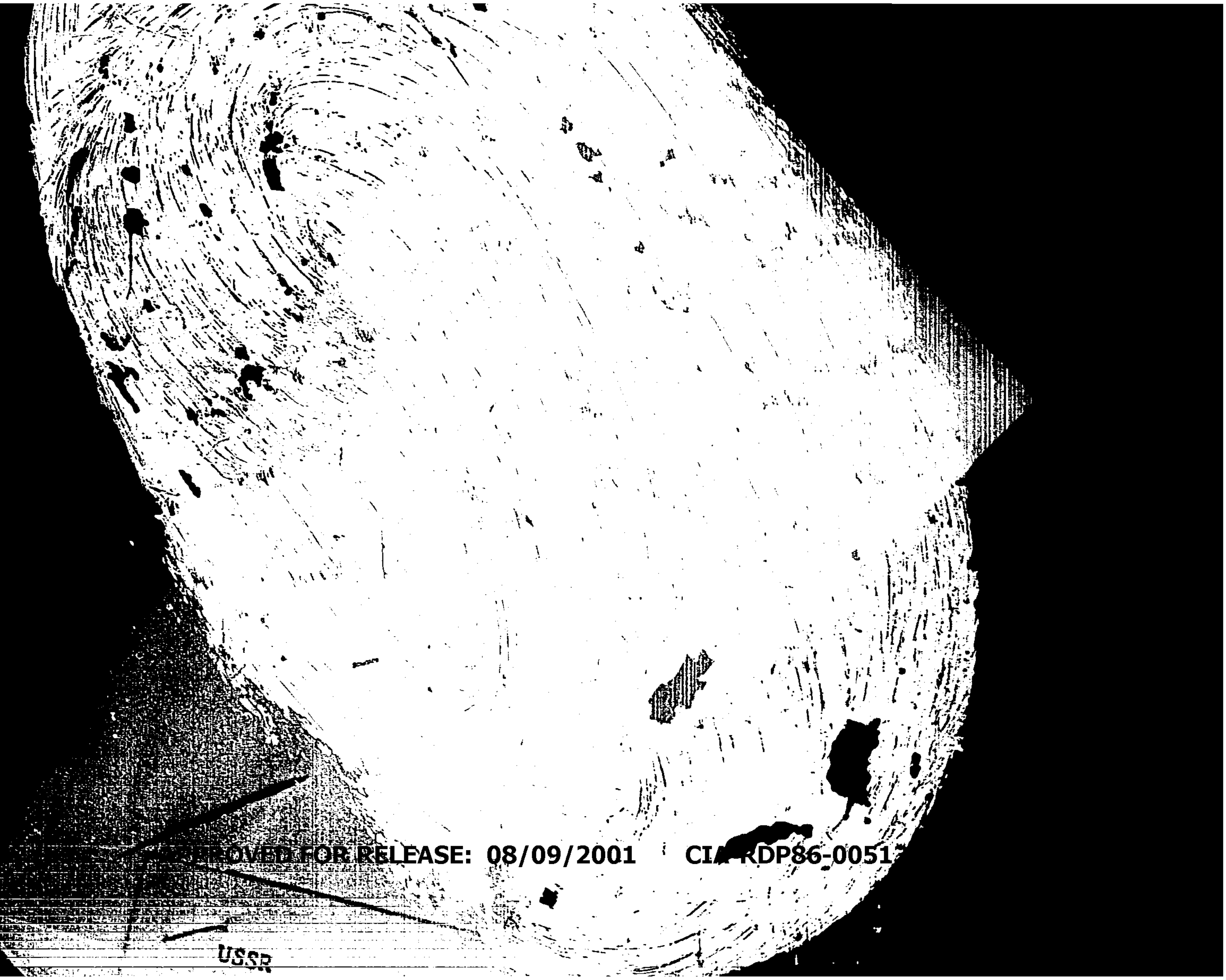
USSR

Econ

DIRECT AND FULL CAPITAL-OUTPUT RATIOS FOR CONSUMER GOODS

[Article by Ya. Kvasha; Moscow, Voprosy Ekonomiki, Russian, No 1, January 1972, pp 27-37]

By way of continuing the research on interbranch relations in the Soviet economy, the USSR Central Statistical Administration [illegible] coefficients of direct and full capital-output ratios for gross output of branches of industry and by construction and agriculture in [illegible]. [illegible] were published in Poland. [illegible] the results of a similar [illegible] statistical [illegible] for the first time in international economic literature, data of this type give a clearer picture and permit more precise measurement of the investment process in a developing economy.

As indicated in the introductory remarks in the tables, the coefficients of direct capital-output ratios per unit of output are calculated as the ratio of the average annual value of fixed capital to the volume of gross output. Coefficients of full capital-output ratios, on the other hand, take into account fixed capital directly and indirectly participating in the output of a given branch as well as the corresponding part of the fixed capital of other branches that participate indirectly in the output of a given branch.

The formula used to calculate coefficients of full capital-output ratios is cited in an article by M. R. Eydel'man, director of the work on the interbranch balance in the USSR Central Statistical Administration:

$$D_{ij}^{(f)} = \sum_{k=1}^{n} K_k^{(d)} b_{kj},$$

or in matrix notation:

$$K^{(f)} = K^{(d)} (E - A)^{-1}.$$

JPRS 55477, [illegible]

[illegible]

KVASHA, Ya.

Organophosphorous Compounds

USSR

UDC 632.95

BLIZNYUK, N. K., KVASHA, Z. M., SPLNTSEVA, L. M., FADEYEV, YU. N., UNTERBERGER, V. K., and YOLOVA, M. N., All-Union Scientific Studies Institute of Phytopathology

"Process for Preparing Mixed Dialkyl Esters of the Higher Alkylphosphonous Acids"

Author's Certificate No 340665, filed 22 Jun 70, published 29 Jun 72, (from Referativnyy Zhurnal -- Khimiya, No 8(II), 1973, Abstract No 8N470P by T. G. Chekareva)

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USSR

BLIZNYUK, N. K., et al., Author's Certificate No 340665, filed 22 Jun 70, published 29 Jun 72

are given together with the boiling temperature in °C/mm, $n^{20}D$, d_4^{20} :

C_9H_{19}, C_6H_{13}, Et, 166-8/1, 1.4418, 0.9277;

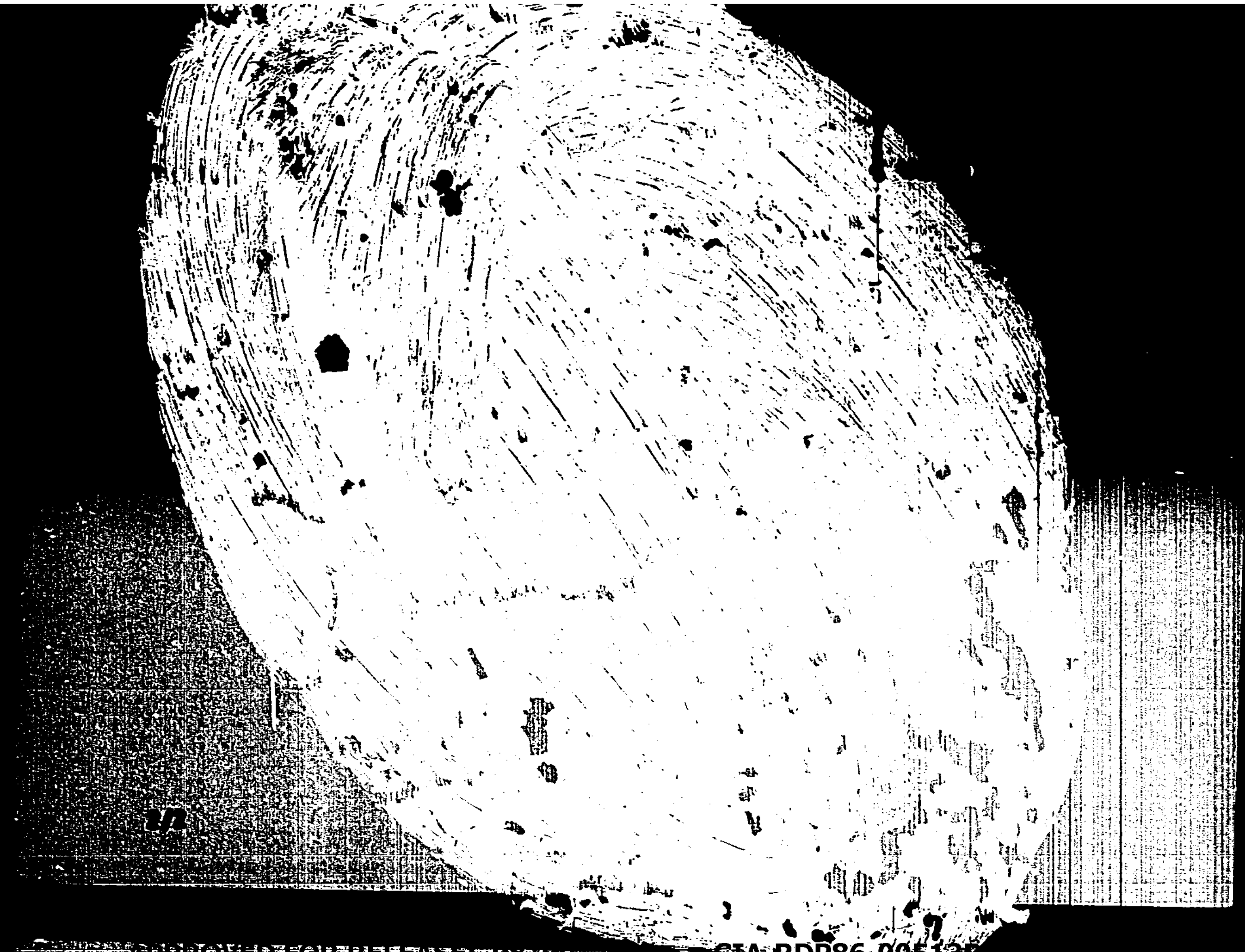
C_9H_{19}, C_6H_{13}, Me, 160-2/1, 1.4430, 0.9425;

C_9H_{19}, C_6H_{13}, Pr, 172-4/1, 1.4430, 0.9270;

C_6H_{13}, Bu, Et, 124-6/1, 1.4320, 0.9512;

C_6H_{13}, Bu, 118-20/1, 1.4350, 0.9443;

C_9H_{19}, C_5H_{11}, Et, 158-60/1, 1.4400, 0.9446.



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BLIZNYUK, N. K., KVASHA, Z. N., VARSHAVSKIY, S. L., BARANOV, Yu. I., LIBMAN, B. Ya., STREL'TSOV, R. V., PROTASOVA, L. D., MARKOVA, L. I., KHOKHLOV, P. S., MADZHARA, G. A., KIRILINA, L. E., All-Union Scientific Research Institute of Phytopathology

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USSR K UDC 535.02

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KORNIYENKO, L. S., et al, Doklady Akademii Nauk SSSR, Vol 193, No 6, 1970, pp 1280-1282

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USSR

BLIZNYUK, N. K., et al., USSR Authors' Certificate No 248673

$Cl_2C_6H_3$, 87-9, 1.6145. I's can be used as physiologically active substances and catalysts.

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KVASHA, Ya.

Econ

DIRECT AND FULL CAPITAL-OUTPUT RATIOS FOR CONSUMER GOODS

[Article by Ya. Kvasha, Moscow, Voprosy Ekonomiki, Russian, No 1, January 1977, pp [illegible]]

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JPRS 55474, [illegible] 72, [illegible]
[illegible] No 241

Organophosphorous Compounds

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UDC 632.95

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UDC 632.95

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USSR

SUKHOMLINOV, B. P., Vopr. tekhnol. ulavlivaniya i pererab. produktov koksovaniya, Kharkov, 1972, pp 50-56

sulfur with a sufficient amount of powdered SL. A SN screw mixer is recommended for bringing the components into contact under pressure and pulverizing them at the same time.

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USSR UDC: 547.26'118.07

BLIZNYUK, N. K., KVASHA, Z. N., MADZHARA, G. A., All-Union Scientific Research Institute of Phytopathology

"A Method of Making Bis-(Organothiol)-Pentaerythritol Phosphates"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 15, Apr 73, Author's Certificate No 374324, Division C, filed 5 Mar 71, published 14 Jul 73, p 52

Translation: This Author's Certificate introduces: 1. A method of making bis-(organothiol)-pentaerythritol phosphates distinguished by the fact that pentaerythritol chlorophosphite is reacted with sulphenyl chlorides and acetic acid in an inert organic solvent with subsequent isolation of the goal product by conventional methods. 2. A modification of this method distinguished by the fact that chloroform is used as the inert organic solvent. 3. A modification of the method covered in point 1 distinguished by the fact that the process si carried out at a temperature from -40 to +20°C. 4. A modification of the process covered in point 1 distinguished by the fact that the pentaerythritol and phosphorus trichloride in an inert organic solvent such as chloroform in the presence of catalytic quantities of an organic base such as

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USSR

BLIZNYUK, N. K., et al., Otkrytiya, Izobreteniya, Primyshlennyye Obraztsy, Tovarnyye Znaki, No 15, Apr 73

pyridine. 5. A modification of the procedure covered in point 1 distinguished by the fact that the sulphenyl chloride is the product of interaction of an organic thiol or disulfide with an equimolar quantity of chlorine or sulfuryl chloride.

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USSR UDC 632.95

BLIZNYUK, N. K., PROTASOVA, L. D., KVASHA, Z. N., KLIMOVA, T. A., and
KLOPKOVA, R. S., All-Union Institute of Phytopathology

"Synthesis of Thiophosphocyclopentenyl Chlorides"

USSR Author's Certificate No 327208, filed 16 Jun 70, published 23 Mar 72 (from Referativnyy Zhurnal — Khimiya, Svodnyy Tom, (I, L-S), No 1(II), 1973, Abstract No 1N457P by T. A. Belyayeva)

Translation: The intermediate products for the synthesis of pesticides, the alkylthiophosphocyclopentenyl chlorides, were prepared during the reaction of diene hydrocarbon with alkyldichlorophosphite and $PSCl_3$ at 100-150°C. Example. One mole BuOH is added to 3 moles PCl_3 at 15-20°C with constant stirring, the mixture is heated at 60-65°C for 2-3 hr; the reaction mixture is cooled to 0-5°C, then 1 mole of colled $CH_2=CHCH=CH_2$ and 3 moles $PSCl_3$ are added, the mixture is heated in a stainless autoclave at 110-120°C for 3 hr. The mixture is distilled and the mixture of acid chloride isomers of thiophosphocyclopentenic (2 and 3) acid is separated from the reaction mixture. The yield was 81%, b.p. 120-140°C/14, $n^{20}D$ 1,5840, d_4^{20} 1,3225. The acid chloride of 3-methylthiophosphocyclopentenic-3 acid was also obtained, b.p. 137-140°C/12, $n^{20}D$ 1,5895, m.p. 43-45°C, as well as mixture

USSR

BLIZNYUK, N. K., et al., USSR Author's Certificate No 327208, filed 16 Jun 70, published 28 Mar 72

of isomers of acid chloride of 3-methylthiophosphocyclopentenic (2 and 3) acid, b.p. 125-135°C/12, $n^{20}D$ 1,5845. Example of the reaction with piperylene.

2/2

USSR UDC 632.95

BLIZNYUK, N. K., KHOKHLOV, P. S., KVASHA, Z. N., MARKOVA, L. I., LEVSKAYA, G. S., PROTASOVA, L. D., SOLNTSEVA, L. M., MATYUKHINA, Ye. N., VARSHAVSKIY, S. A., BARANOV, Yu. I., LIBMAN, B. Ya., ZHEMCHUZHIN, S. G.

"Method of Production of Dichlorides or Dibromides of Thiophosphonic Acids or Their Bis Analog"

USSR Author's Certificate No 332095, filed 19/08/69, published 17/04/72 (Translated from Referativnyy Zhurnal Khimiya, No 24(II), 1972, Abstract No 24N591, by T. A. Belyayeva)

Translation: Compounds of the formula $RP(X)X_2$ (I) (R=alkyl, aryl, aralkyl; X=Cl or Br) and $X_2P(S)A(S)PX_2$ (II) (A-bivalent hydrocarbon radical) were produced by the reaction of mono- or dihalo hydrocarbons with S, P and PX_3 with heating to 250-400° in an autoclave of stainless steel or nickel in the presence of catalytic quantities of I_2 or its compounds. Example. A mixture of 0.24 mole PhCl, 0.24 g-atom S, 0.16 g-atom white P, 33 ml PCl_3 and 0.05 g I_2 is heated at 290-330° for seven hours in an autoclave of stainless steel, the PCl_3 is distilled, then vacuum distillation is used to separate I (R=Ph, X=Cl), yield 60%, B. T. 109-112°/3, $n^{20}D$ 1.6241. Similarly, I were produced (given R, X, yield in %, B. P. in °C/mm, $n^{20}D$): 4-ClC_6H_4,

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BLIZNYUK, N. K., et al., USSR Author's Certificate No 332095, filed 10/08/69, published 17/04/72

Cl, 53.5; 124-3/1.5-2, 1.6229; p-MeC_6H_4, Cl, 54.5, 125-7/1, 1.6120; $4FC_6H_4$, Cl, 72.2, 95-7/0.5, 1.6028; Ph, Br, 61, 127-130/2, 1.6150; 4-FC_6H_4, Br, 55, 135-8/1, 1.6758; $PhCH_2$, Cl, 76.4, 120-3/2, 1.6150; 3-FC_6H_4, Cl, 108-110/1.5, 1.5908; 4-$MeC_6H_4CH_2$, Cl, 53.3, 126-9/2, 1.6035; 4-$ClC_6H_4CH_2$, Cl, 61.6, 129-133.2, m. p. 74-6°, --; 2-$FC_6H_4CH_2$, Cl, 61.6, 129-133.2, m. p. 48-9°, --; 2.4-$Me_2C_6H_3CH_2$, Cl, 47.5, 140-1.6045; 2.4-$Cl_2C_6H_3CH_2$, Cl, 43.4, 147-9/2, m. p. 100-1", --. Also produced were II ($X=Cl$, $A=CH_2CH_2$), yield 61.5%, m. p. 92-3°. I and II are intermediate products for the production of insecticides, acarocides, fungicides and herbicides.

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USSR UDC 632.95

BLIZNYUK, N. K., LEVSKAYA, G. S., KVASHA, Z. N., MATYUKHINA, Ye. N.

"Procedure for Obtaining Bis-thiolphosphonates"

USSR Author's Certificate No 319605, filed 16 Mar 70, published 17 Jan 72 (from RZh-Khimiya, No 2 (II), Feb 73, Abstract No 2N530)

Translation: Fungicides with the formula $A[CH_2SP(O)(OR'')R]_2$ (I) (R = alkyl, aryl, aralkyl; R' = alkyl or aryl, A = arylene) are obtained by the reaction $RP(O)(OR')SR''$ (II) (R" = alkyl) with xylylendihalogenide at a temperature of 140-200° in an organic solvent. As an example, a mixture of 0.05 moles of II (R = r-ClC_6H_4, R' = R" = Me) and 0.025 grams of 1.4-$(BrCH_2)_2$-C_6H_4 in 5 ml of xylol is boiled to completion of precipitation of MeBr, it is evaporated and the I (A = 1,4-C_6H4, R = 4-ClC_6H_4, R' = Me) is separated. The yield is 67.3%, the melting point 167-8°. The I is synthesized analogously (R, R', yield in %, $n^{20}D$ or melting point in "C are presented) A = 1,4-C_6H_4: Et, Me, 96, 1.5580; Me, Et, 97.4, 1.5330; 4-MeC_6H_4, Me, 88, 160-2 (acetone); $PhCH_2$, Me, 95.7, 1.6075; A = 4-MeC_6H_3-1,3: 4-ClC_6H_4, Me, 92.4, 152-4 (acetone).

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USSR UDC 632.95

BLIZNYUK, N. K., PROTASOVA, L. D., and KVASHA, Z. N., VNII (All-Union Scientific Research Institute) of Phytopathology

"Preparation Method of Anhydrides of Phosphacyclopentenic Acid"

USSR Author's Certificate No 314754, filed 4 Feb 70, published 26 Jan 72 (from Referatinvyy Zhurnal -- Khimiya, Svodnyy Tom, No 19 (II), 1972, Abstract No 19N458 P by I. A. Mel'nikova)

Translation: Anhydrides of phosphacyclupentenic acids which are intermediate products in the synthesis of organophosphorous compounds are prepared during the reaction of corresponding acids with their acid chlorides (AC) by heating the mixture in the absence of solvent and HCl acceptor. A mixture of 0.05 moles of phosphacyclopentenic acid (I) and 0.05 moles of AC of I is heated at 150°C for 30 min. to 1 hr followed by a removal of the AC of I (II). The yield of product was 97%, with m.p. 43-44°C, boiling point 215-220°C/1. Acid chlorides of other acids are synthesized similarly (acid involved, % yield, boiling point in °C/mm are given in that order): 2-methyl-I, 93, 190-195/0.5, $n^{20}D$ 1.5265, d_4^{20} 1.2512; 3-methyl-I, 93, 230-235/1. A mixture of 0.05 mole of II and 0.25 mole of absolute MeOH is heated at ~ 20°C for 10-12 hr and ME (methyl ester) of I is separated. The yield 76%, boiling point 80-82°C/2,

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BLIZNYUK, N. K., et al., USSR Author's Certificate No 314754, filed 4 Feb 70, published 26 Jan 72

$n^{20}D$ 1.4860, d_4^{20} 1.1913. To the remaining amount of II 0.06 mole of AC I is added, tho mixture is heated at 100-150°C until evolution of HCl stopps (gas), and evoporate at 130-150°C/15. The residue contains II to which 0.25 mole MeOH is added without a preliminary purification. After separating the methyl ester of I by the above method, the yield was 84% (on conversion tc starting II). To the remaining residue (white crystals) AC of I is added egain and the whole process is repeated again. The yield of a ready product is 86%. The nethyl esters of acids (constant, % yield, boiling point in °C/mm, $n^{20}D$, d_4^{20} are given in this order) are prepared in analogoud way: 2-methyl-I, 80-90, 100-105/2, ~1.4830, ~1.1343; 3-methyl-I, 63-87, 100-105/2, 1.4860, 1.1476.

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Organophosphorous Compounds

USSR UDC 632.95

BLIZNYUK, N. K., LEVSKAYA, G. S., MATYUKHINA, YE. N., KVASHA, Z. N.

"Procedure for Obtaining Bisanilidophosphonates or Thiophosphonates"

USSR Author's Certificate No 298592, filed 23 Jan 70, published 25 May 71 (from RZh-Khimiya, No 6 (II), Jun 72, Abstract No 5N611)

Translation: Substances with the general formula $A[OP(X)(R)NR'R'']_2$ (I; R = alkyl, aryl, aralkyl; R' = lowest alkyl; R" = aryl; A = 2-valent aromatic or aliphatic aromatic radicals; X = O or S) are obtained on interaction of di-N-alkylanilides of phosphonic or thiophosphonic acid with aromatic dioxy compounds at a temperature of 150-180° and a pressure of 10-30 mm with simultaneous distillation of the N-alkylaniline formed. The mixture of 0.01 moles of di-N-methylanilide of phenylphosphonic acid and 0.005 moles of 2,2-bis-(4'-oxy-phenyl)-propane (II) is heated to 170-180°, PhNHMe is distilled off simultaneously at a pressure of 20-30 mm, the residue is ground with ether and I is obtained [R = Ph, R' = Me, R" = Ph, X = O, A = $4\cdot C_6H_4C(Me_2)C_6H_4$-4'], with a yield of 90.6% and a decomposition temperature of 45-62°. The I is obtained analogously (R, R', R", X, A, the yield in %, and the melting point in °C are presented): Ph, Me, Ph, S, 4(3.5-$Cl_2C_6C_2$(C(Me_2)(3.5-$Cl_2C_6H_2$)-4', 97.5, 140-5; $PhCH_2$, Me, Ph, O, 4-C_6H_4C

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USSR

BLIZNYUK, N. K., et al., USSR Author's Certificate No 296598, filed 23 Jan 70, published 25 May 71

$(Me_2)C_6H_4$-4', 91.6, 122-6; Me, Me, Ph, S; 4-$C_6H_4C(Me_2)C_6H_4$, 4', 98.1, 78-80; Me, Me, Ph, S, 4,4'-$(3\text{-}NH_2C_6H_3)_2SO_2$ 95, 185-7. A mixture of 0.02 moles of $PhCH_2P(O)Cl_2$ and 0.08 moles of $PhNEt_2$ (III) are boiled to cessation of separation of EtCl, 0.01 moles of dichlorodiphenylolpropane are added, it is heated, simultaneously driving off the residue of III and PhNHEt at a pressure of 10-20 mm. The residue is ground with petroleum ether and I is obtained [R = $PhCH_2$, R' = Et, R" = Ph, X = O, A = $ClC_6H_3C(Me_2)C_6H_3Cl$] with a yield of 97.6% and a melting point of 124-5°. The I can be used as fungicides.

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USSR

BLIZNYUK, N. K., KVASHA, Z. N., MADZHARA, G. A., MARKOVA, L. I.

"Method of Producing Arylthiophosphonic or Benzylthiophosphonic Acids"

USSR Author's Certificate No 298593, filed 30/03/70, published 4/05/71. (Translated from Referativnyy Zhurnal Khimiya, No 4, Moscow, 1972, Abstract No 4N585P by T. A. Belyaeva).

Translation: Substances with the general formula $R_mC_6H_{5-m}(CH_2)_nP(S)Cl_2$ (I) (R=H, alkyl, halide; n=0 or 1; m=1-5), used in the synthesis of pesticides, are produced by reacting PCl_3 with $R_mC_6H_{5-m}(CH_2)_nSH$ in a molar ratio of 3-5:1. $PhCH_2SH$ is added to PCl_3, mixed 0.5-1 hr at about 20° and boiled 2 hr. The solution is heated 2.5-3 hr in an autoclave of stainless steel at 250-270°, cooled and I is separated (R=H, m=n=1), b. p. 122-5°/2-3, $n^{20}D$ 1.6140. Also produced were I (presented are R_m, n; yield in %, b. p. in °C, b. p. in °C/mm): H, 0, 90, -, 120-3/5; 2.5-Cl_2, 0, 72, -, 150-3/2; p-tert-Bu, 0, 80, 39-41, 153-6/2; Cl_5, 0, 65, 110-4, -.

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UDC 547.241.07

USSR

BLIZNYUK, N. K., KVASHA, Z. N., and MADZHARA, G. A., All-Union Scientific Research Institute of Phytopathology

"A Method of Synthesizing Trithiophosphonates"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 5, Feb 71, Author's Certificate No 292985, Division, C, filed 20 Jan 69, published 15 Jan 71, p 101

Translation: This Author's Certificate introduces: 1. A method of making trithiophosphonates by interacting phosphorus acid chlorides with alkyl halides and hydrogen sulfide in the presence of a catalyst such as pyridine with heating. As a distinguishing feature of the patent, the method is simplified by using phosphonic acid dichloride as the phosphorus acid chloride. 2. A modification of this method distinguished by the fact that the process is done at a temperature of 120-170°C.

UDC 547.241.07

USSR

BLIZNYUK, N. K., KVASHA, Z. N., PROTASOVA, L. D., MADZHARA, G. A., VARSHAVSKIY, S. L., LIBMAN, B. Ya., and BARANOV, Yu. I., All-Union Scientific Research Institute of Phytopathology

"A Method of Making Dihalophosphines"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 5, Feb 71, Author's Certificate No 292988, Division C, filed 10 Nov 69, published 15 Jan 71, p 102

Translation: This Author's Certificate introduces: 1. A method of making dihalophosphines by interacting a hydrocarbon halide or polyhalide with white phosphorus or a phosphorus trihalide with the application of heat and in the presence of a catalyst, with subsequent isolation of the goal product by conventional methods. As a distinguishing feature of the patent, the yield of the goal product is increased by using selenium, selenium anhydride or phosphorus selenide as the catalyst. 2. A modification of this method distinguished by the fact that the process is done at a temperature of 250-380°C.

UDC 632.95

USSR

BLIZNYUK, N. K., LEVSKAYA, G. S., KVASHA, Z. N., and VARSHAVSKIY, S. L., All-Union Scientific Research Institute of Phytopathology

"A Method of Synthesizing 1,4-bis-(dialkyl- or dibenzyltrithiophosphoryl)-benzene"

USSR Author's Certificate No 259881, filed 1 Jul 68, published 28 May 70 (from RZh-Khimiya, No 2, 25 Jan 71, Abstract No 2N566 P)

Translation: Compounds of formula $C_6H_4[P(S)(SR)_2]_2$-1,4 (I) (R is an unsubstituted or substituted alkyl or benzyl) are synthesized by interacting 1,4-bis-(dichlorothiophosphoryl) benzene (II) with alkyl or benzyl halides and H_2S at 120-70°C in the presence of catalytic quantities of organic base (C_5H_5N). For instance, two drops of C_5H_5N are added to a mixture of 0.02 mole of II and 0.09 mole of $PhCH_2Cl$, and H_2S is bubbled through at 130-40°C for 10-12 hours, and then for 3-4 hours at 150-60°C until liberation of HCl ceases. Upon cooling, the resultant product is compound I ($R = PhCH_2$), melting point 114-5°C (PhH), yield 80.7 percent. The following compounds (I) are synthesized analogously (given are R, melting point in °C or d_4^{25} and $n^{25}D$): $4-ClC_6H_4CH_2$, 137-8 (ethyl amine); $2,4-Me_2C_6H_3CH_2$, 94-5; C_7H_{15}, 1.071, 1.5072. Compounds I can be used as insecticides or as additives to lubricants.

UDC 547.341.26'118.07

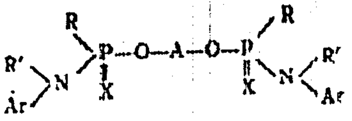
USSR

BLIZNYUK, N. K., LEVSKAYA, G. S., MATYUKHINA, Ye. N., and KVASHA, Z. N., All-Union Scientific Research Institute of Phytopathology

"A Method of Making Bisanilido Phosphonates or Bisanilidothiophosphonates"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 11, Apr 71, Author's Certificate No 298592, division C, filed 23 Jan 70, published 16 Mar 71, p 87

Translation: This Author's Certificate introduces: 1. A method of making bisanilidophosphonates or bisanilidothiophosphonates of the general formula



where R is an alkyl, aryl, or aralkyl, R' is a lower alkyl, Ar is an aryl, A is an aromatic or aromatic-aliphatic hydrocarbon radical, and X is oxygen or sulfur. As a distinguishing feature of the patent, a di-N-alkylanilide of phosphonic or thiophosphonic acid is treated with an aromatic dihydroxy compound with the application of heat, followed by isolation of the product

USSR

BLIZNYUK, N. K., et al., Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 11, Apr 71, Author's Certificate No 298502, division C, filed 23 Jan 70, published 16 Mar 71, p 87

by conventional methods. 2. A modification of this method consists of heating to 150-180°C. 3. A modification of this method distinguished by the fact that the process is carried out at a residual pressure of 10-30 mm Hg with simultaneous distillation of the N-alkylaniline formed in the reaction. 4. A modification of this method distinguished by the fact that the reaction mass produced by heating the corresponding phosphonic or thiophosphonic acid dichlorides with N,N-dialkylanilines to 200-250°C is used as the di-N-alkylanilide of phosphonic or thiophosphonic acid.

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UDC 547.341.26'118.07

USSR

BLIZNYUK, N. K., KVASHA, Z. N., and MADZHARA, G. A., All-Union Scientific Research Institute of Phytopathology

"A Method of Making Trithiophosphonates"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 1, Jan 71, Author's Certificate No 289096, division C, filed 11 Dec 69, published 8 Dec 70, pp 77-78

Translation: This Author's Certificate introduces a method of making trithiophosphonates by interacting thiol with a thiophosphonic acid derivative in the presence of heat with subsequent isolation of the goal product by conventional methods. As a distinguishing feature of the patent, the method is simplified and a greater variety of products is obtained by using dithiophosphonic acid anhydride as the thiophosphonic acid derivative. The patent also covers a modification of this method distinguished by the fact that heating is done to 10-220°C.

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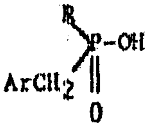
USSR UDC 547.241.07

BLIZNYUK, N. K., PROTASOVA, L. D., KVASHA, Z. N., KLIMOVA, T. A., and KLOPKOVA, R. S., All-Union Scie~~ntific Research~~ Institute of Phytopathology

"A Preparative Method for Benzylphosphinic Acids"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 11, Apr 71, Author's Certificate No 298590, division C, filed 23 Jan 70, published 16 Mar 71, p 87

Translation: This Author's Certificate introduces: 1. A method of making benzylphosphinic acids of the general formula .



where R is an alkyl, aryl, or aralkyl, and Ar is an unsubstituted or substituted phenyl. As a distinguishing feature of the patent, the process is simplified by treating diarylphosphonite with benzyl chloride in alcohol with subsequent isolation of the product by conventional methods. 2. A

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USSR

BLIZNYUK, N. K., et al., Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 11, Apr 71, Author's Certificate No 298590, division C, filed 23 Jan 70, published 16 Mar 71, p 87

modification of this method distinguished by the fact that the process is carried out with heating to 150-250°C.

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UDC 547.341.07

USSR

BLIZNYUK, N. K., KVASHA, Z. N., MADZHARA, G. A., and MARKOVA, L. I., All-Union Scientific Research Institute of Phytopathology

"A Method of Making Aryl- or Benzylthiophosphonic Acid Dichlorides"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 11, Apr 71, Author's Certificate No 298593, division C, filed 30 Mar 70, published 16 Mar 71, p 88

Translation: This Author's Certificate introduces: 1. A method of making aryl- or benzylthiophosphonic acid dichlorides by treating phosphorus trichloride with an aryl- or benzylthiol in the presence of heat, and isolating the goal product by conventional methods. As a distinguishing feature of the patent, the method is simplified and the yield of the goal product is increased by using an excess of phosphorus trichloride. 2. A modification of this method distinguished by the fact that the thiols and phosphorus tricholride are used in molar ratios of 1:3-5 respectively. 3. A modification of this method distinguished by the fact that the mixture of reagents is preboiled at atmospheric pressure and then heated in an autoclave at 250-320°C for 2-3 hours.

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USSR

BLIZNYUK, N. K., KVASHA, Z. N., VARSHAVSKIY, MADZHARA, G. A.,
All-Union Institute of Plant Pathology

"A Method for Preparing Mixed Thiophosphonates"

USSR Author's Certificate No 239946, class 12a, 23/01, (C 07 f), filed 20 Jun 66, published 13 Feb 70 (from RZh-Khimiya, No 21 (II), 10 Nov 70, Abstract No 21 N559 P by I. A. Mel'nikova)

Translation: Compounds with the general formula $RP(S)(OR')(OR'')$ (I) (R = Me, Ph, $PhCH_2$; R' = Et, R'' = alkyl, naphthyl, subst. aryl), active as pesticides, are obtained by reaction of chlorides of thiophosphinic acids with alcohols at 60-100° without a HCl acceptor in the presence of a catalyst (derivatives of P acids, their mixtures with bases, boron trifluoride ester, heterocyclic bases). For example, a mixture of 0.03 g mole of $MeP(S)(OPh)Cl$, 0.09 mole of abs. EtOH and 74 mg (1 mole %) beta-diethylaminoethyltrithiomethylphosphonate (II) is boiled for 4 hours and allowed to evaporate, producing in the residue I (R = Me, R'' = Ph, R' = Et), yield 92.7%, boiling point 102-121, $n^{20}D$ 1.5370, d_4^{20} 1.1486. I (R'